

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of  
Mamoru TAKAHASHI, et al.  
Serial No. 09/744,904  
Filed: 01/31/2001

Group Art Unit: 1713  
Examiner: Lee, Rip A.

For: ETHYLENE (CO) POLYMER AND ITS USE

The Honorable Commissioner of Patents and Trademarks  
United States Patent and Trademark Office  
Washington, D. C. 20231

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JUL 25 2003  
TC 1700

Sir:

DECLARATION UNDER 37 CFR 1.132

I, Makoto Mitani, declare and state that:

1. In March 1987, I was graduated from Kyoto University, Faculty of Engineering, Department of Industrial Chemistry and received a degree of Bachelor of Engineering from the same University. In March 1989, I was graduated from the master course of the same University, Institute of Engineering, majoring in Industrial Chemistry, and received a degree of Master of Science from the same University. In March 1997, I received a degree of Doctor of Engineering from the same University.

Since 1989, I have been an employee of Mitsui Chemicals, INC., and till the present time I have been engaged in Research of olefin polymerization catalyst.

2. I am a co-inventor of the invention described in the specification of the above-identified application.

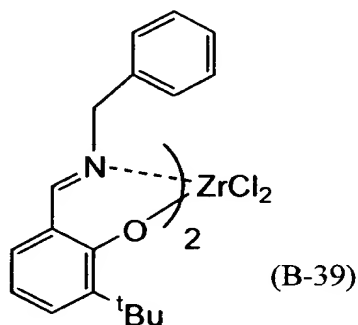
3. I carried out the following experiment.

## Experiment

### Experiment 1

[Preparation of a solid catalyst component]

Catalyst preparation was carried out in the same manner as described in Example 2 of the present specification except that the following compound which is the same as compound (B-39) of Fujita (USP 6,309,997, column 208) was used instead of the compound (C2).



[Polymerization]

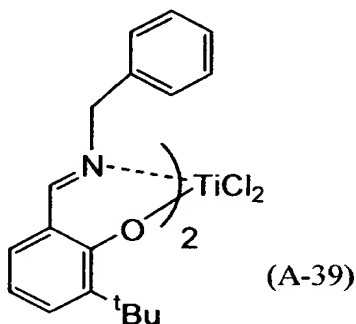
Heptane 370 ml was charged in a 1 liter autoclave made of a stainless steel and sufficiently purged with nitrogen, and the liquid phase and the gas phase were saturated with ethylene. Then, 80 g of 1-butene was charged and the autoclave was heated to 80°C. After that, ethylene was fed to the autoclave to maintain total pressure of 8 kg/cm<sup>2</sup>-G. Subsequently, triisobutylaluminum 0.5 mmol and the solid catalyst component prepared above 0.001 mmol in terms of Zr atom were added to carry out polymerization while feeding ethylene to maintain total pressure at 8 kg/cm<sup>2</sup>-G for 60 minutes at 80°C.

The obtained polymer suspension was filtered by a glass filter, washed with hexane and vacuum dried at 80°C for 10 hours. 28.8 g of ethylene/1-butene copolymer was obtained, and its intrinsic viscosity was 2.05 dl/g, and 1-butene content determined by Infrared

spectrum was 1.82 mol%. Molecular weight distribution measured by Gel Permeation Chromatograph (GPC) was 10.5.

## Experiment 2

Catalyst preparation and polymerization were carried out in the same manner as described in Example 2 of the present specification except that the following compound which is the same as compound (A-39) of Fujita (USP 6,309,997, column 208) was used instead of the compound (C2). However, only trace amount of polymer was obtained.



From the results of the above experiments, and based on my knowledge and experience on Olefin Polymerization Chemistry, I conclude that:

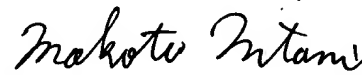
The compounds A-39 and B-39 of Fujita are not effective to produce the ethylene (co)polymer according to the present invention.

The undersigned declares further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment,  
or both, under Section 1001 of Title 18 of the United States Code  
and that such willful false statements may jeopardize the validity  
of the application or any patent issuing thereon.  
Respectfully submitted,

Respectfully submitted,

this 13 day of June, 2003

A handwritten signature in cursive script, reading "Makoto Mitani". A long, thin horizontal line extends from the end of the signature to the right.

MITANI, Makoto